BioMap and Living Waters

Guiding Land Conservation for Biodiversity in Massachusetts

Core Habitats of Orleans

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:

Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

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BioMap and Living Waters:
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* Depending on the location of Core Habitats, your city or town may not have all of these sections.

Spring Salamander
(Gyrinophilus porphyriticus)
Species of Special Concern

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Natural Heritage & Endangered Species Program

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For more information on rare species and natural communities, please see our fact sheets online at ***www.nhesp.org***

BioMap and Living Waters:
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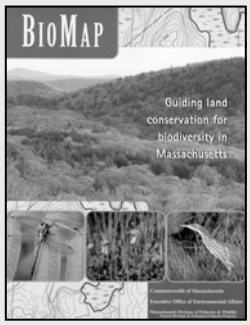
Introduction

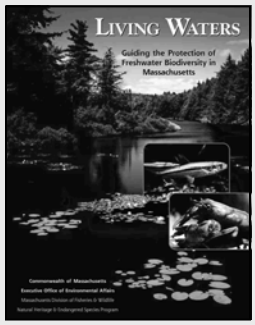
In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generatons to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, ***BioMap*** and ***Living Waters***. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

What is a Core Habitat?

Both BioMap and Living Waters delineate ***Core Habitats*** that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.





Get your copy of the ***BioMap*** and ***Living Waters*** reports! Contact Natural Heritage at 508-792-7270, Ext. 200 or email natural.heritage@state.ma.us. Posters and detailed technical reports are also available.

Core Habitats and Land Conservation

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the ***riparian areas***, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as ***Supporting Natural Landscape*** provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was

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generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, ***Critical Supporting Watersheds*** highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from www.mass.gov/mgis.

Understanding Core Habitat Species, Community, and Habitat Lists

What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the entire Core Habitat, not just the portion that falls within your city or town. For a list of all the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at www.nhesp.org.

The list of species and communities within a Core Habitat contains only the species and natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant

Table 1. The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap		
	Species and Verified Natural Community Types	
Biodiversity Group	**Included in BioMap**	**Total Statewide**
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types
Living Waters		
	Species	
Biodiversity Group	**Included in Living Waters**	**Total Statewide**
Aquatic Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

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species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- ***Endangered*** species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- ***Threatened*** species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- ***Special Concern*** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial ***watch list*** of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural communities reflects the documented number and acreages of each community type in the state:

- ***Critically Imperiled*** communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- ***Imperiled*** communities typically have 6-20 sites or few remaining acres in the state.
- ***Vulnerable*** communities typically have 21-100 sites or limited acreage across the state.
- ***Secure*** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.

Legal Protection of Biodiversity

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The ***Massachusetts Natural Heritage Atlas*** shows **Priority Habitats**, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and **Estimated Habitats**, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

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Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific ***fact sheets*** at www.nhesp.org.

Next Steps

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

Protecting Larger Core Habitats

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

Additional Information

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

by Phone *508-792-7270, Ext. 200*

by Fax: *508-792-7821*

by Email: *natural.heritage@state.ma.us*.

by Mail: *North Drive*
Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: www.mass.gov/mgis

Check out www.nhesp.org for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
  - Field guides
  - Natural Heritage Atlas, and more!

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BioMap: Species and Natural Communities

Orleans

Core Habitat BM1109

Natural Communities

Common Name	Scientific Name	Status
Atlantic White Cedar Bog		Imperiled
Coastal Atlantic White Cedar Swamp		Imperiled
Coastal Plain Pondshore		Imperiled
Estuarine Intertidal: Saline/Brackish Flats		Vulnerable
Level Bog		Vulnerable
Maritime Dune Community		Imperiled
Sandplain Heathland		Critically Imperiled

Plants

Common Name	Scientific Name	Status
Broom Crowberry	*Corema conradii*	Special Concern
Bushy Rockrose	*Helianthemum dumosum*	Special Concern
Commons's Panic-Grass	*Dichanthelium ovale ssp. pseudopubescens*	Special Concern
Few-Fruited Sedge	*Carex oligosperma*	Endangered
Ovate Spike-Sedge	*Eleocharis ovata*	Endangered
Oysterleaf	*Mertensia maritima*	Endangered
Purple Needlegrass	*Aristida purpurascens*	Threatened
Salt Reedgrass	*Spartina cynosuroides*	Threatened
Swamp Oats	*Sphenopholis pensylvanica*	Threatened
Walter's Sedge	*Carex striata*	Endangered
Weak Rush	*Juncus debilis*	Endangered

Invertebrates

Common Name	Scientific Name	Status
Barrens Buckmoth	*Hemileuca maia*	Special Concern
Blueberry Sallow	*Apharetra dentata*	----------

BioMap: Species and Natural Communities

Orleans

Chain Dot Geometer	*Cingilia catenaria*	Special Concern
Chain Fern Borer Moth	*Papaipema stenocelis*	Threatened
Coastal Heathland Cutworm	*Abagrotis nefascia benjamini*	Special Concern
Coastal Swamp Metarranthis Moth	*Metarranthis pilosaria*	Special Concern
Comet Darner	*Anax longipes*	Special Concern
Drunk Apamea Moth	*Apamea inebriata*	Special Concern
Dune Noctuid Moth	*Oncocnemis riparia*	Special Concern
Gerhard's Underwing Moth	*Catocala herodias gerhardi*	Special Concern
Melsheimer's Sack Bearer	*Cicinnus melsheimeri*	Threatened
New England Bluet	*Enallagma laterale*	Special Concern
Northern Brocade Moth	*Neoligia semicana*	Special Concern
Oak Hairstreak	*Satyrium favonius*	Special Concern
Pale Green Pinion Moth	*Lithophane viridipallens*	Special Concern
Pine Barrens Bluet	*Enallagma recurvatum*	Threatened
Pine Barrens Zale	*Zale sp. 1 near lunifera*	Special Concern
Pink Sallow	*Psectraglaea carnosa*	Special Concern
Spatterdock Darner	*Aeshna mutata*	Special Concern
Water-Willow Stem Borer	*Papaipema sulphurata*	Threatened
Waxed Sallow Moth	*Chaetaglaea cerata*	Special Concern

Vertebrates

Common Name	Scientific Name	Status
Arctic Tern	*Sterna paradisaea*	Special Concern
Common Tern	*Sterna hirundo*	Special Concern
Diamondback Terrapin	*Malaclemys terrapin*	Threatened
Eastern Box Turtle	*Terrapene carolina*	Special Concern
Eastern Spadefoot	*Scaphiopus holbrookii*	Threatened
Four-toed Salamander	*Hemidactylium scutatum*	Special Concern
Least Tern	*Sterna antillarum*	Special Concern

Northern Harrier	*Circus cyaneus*	Threatened
Piping Plover	*Charadrius melodus*	Threatened
Spotted Turtle	*Clemmys guttata*	Special Concern
Vesper Sparrow	*Pooecetes gramineus*	Threatened

Core Habitat BM1226

Natural Communities

Common Name	Scientific Name	Status
Marine Intertidal: Flats		Secure

Plants

Common Name	Scientific Name	Status
Brackish Bulrush	*Scirpus cylindricus*	Watch Listed
Mitchell's Awned Sedge	*Carex mitchelliana*	Watch Listed
Oysterleaf	*Mertensia maritima*	Endangered
Seabeach Dock	*Rumex pallidus*	Threatened

Vertebrates

Common Name	Scientific Name	Status
Diamondback Terrapin	*Malaclemys terrapin*	Threatened

Core Habitat BM1233

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM1238

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

BioMap: Species and Natural Communities

Orleans

Core Habitat BM1241

Natural Communities

Common Name	Scientific Name	Status
Estuarine Intertidal: Saline/Brackish Flats		Vulnerable
Marine Intertidal: Flats		Secure
Maritime Beach Strand Community		Vulnerable
Maritime Dune Community		Imperiled

Plants

Common Name	Scientific Name	Status
American Sea-Blite	*Suaeda calceoliformis*	Special Concern
Oysterleaf	*Mertensia maritima*	Endangered

Invertebrates

Common Name	Scientific Name	Status
Coastal Heathland Cutworm	*Abagrotis nefascia benjamini*	Special Concern

Vertebrates

Common Name	Scientific Name	Status
Arctic Tern	*Sterna paradisaea*	Special Concern
Common Moorhen	*Gallinula chloropus*	Special Concern
Common Tern	*Sterna hirundo*	Special Concern
Diamondback Terrapin	*Malaclemys terrapin*	Threatened
Least Tern	*Sterna antillarum*	Special Concern
Northern Harrier	*Circus cyaneus*	Threatened
Pied-Billed Grebe	*Podilymbus podiceps*	Endangered
Piping Plover	*Charadrius melodus*	Threatened
Roseate Tern	*Sterna dougallii*	Endangered
Short-eared Owl	*Asio flammeus*	Endangered

BioMap: Species and Natural Communities

Orleans

Core Habitat BM1244

Invertebrates

Common Name	Scientific Name	Status
Water-Willow Stem Borer	*Papaipema sulphurata*	Threatened

Core Habitat BM1245

Natural Communities

Common Name	Scientific Name	Status
Coastal Plain Pondshore		Imperiled

Plants

Common Name	Scientific Name	Status
Maryland Meadow Beauty	*Rhexia mariana*	Endangered
Plymouth Gentian	*Sabatia kennedyana*	Special Concern
Pondshore Knotweed	*Polygonum puritanorum*	Special Concern
Purple Milkweed	*Asclepias purpurascens*	Endangered
Redroot	*Lachnanthes caroliana*	Special Concern
Terete Arrowhead	*Sagittaria teres*	Special Concern
Two-Flowered Rush	*Juncus biflorus*	Watch Listed

Invertebrates

Common Name	Scientific Name	Status
New England Bluet	*Enallagma laterale*	Special Concern
Pine Barrens Bluet	*Enallagma recurvatum*	Threatened
Water-Willow Stem Borer	*Papaipema sulphurata*	Threatened

Vertebrates

Common Name	Scientific Name	Status
Bird Migration Habitat		----------
Eastern Box Turtle	*Terrapene carolina*	Special Concern

Core Habitat BM1246

Plants

Common Name	Scientific Name	Status
Plymouth Gentian	*Sabatia kennedyana*	Special Concern

Invertebrates

Common Name	Scientific Name	Status
New England Bluet	*Enallagma laterale*	Special Concern

Core Habitat BM1266

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM1270

Invertebrates

Common Name	Scientific Name	Status
New England Bluet	*Enallagma laterale*	Special Concern

BioMap: Core Habitat Summaries

Orleans

Core Habitat BM1109

This large Core Habitat along outer Cape Cod contains a wealth of high-quality and uncommon natural communities that together support incredible species diversity. Several highlights include the many rare species of Coastal Plain dragonflies, damselflies, and moths, as well as the diversity of rare plants. The area's beaches provide some of the most important breeding habitat for Piping Plovers along the Atlantic Coast, and the area contains other important nesting and breeding habitats for rare birds such as Least Terns. In addition, the Core Habitat supports the largest and most extensive populations of Eastern Spadefoot Toads in New England, the largest Diamondback Terrapin population in Massachusetts, and healthy populations of other rare turtles. Much of this large Core Habitat is on protected land, most of which is within the Cape Cod National Seashore, but some of which is in smaller protected areas such as the Wellfleet Bay Massachusetts Audubon Sanctuary.

Natural Communities

This Core Habitat contains over 3000 acres with the largest dune system in the state and in the northeast. It includes excellent examples of a Maritime Dune natural community, the best and largest example of classic bog vegetation on Cape Cod, Atlantic White Cedar Bogs and swamps, the state's best mainland Sandplain Heathlands, and extensive Estuarine Saline/Brackish Flats. The Core Habitat includes very diverse, interdigitated, and often uncommon natural communities.

Plants

A diversity of rare plant species, including several Endangered species, is found within this important area along outer Cape Cod. Among them are most of the state's populations of the Endangered Few-Fruited Sedge. Some of the state's best populations of Broom Crowberry, a low, bushy, heath-like plant with black fruit, are also found here.

Invertebrates

This Core Habitat includes numerous Coastal Plain ponds that are home to rare species of dragonflies and damselflies, including the spectacular red and green Comet Darner and the tiny blue Pine Barrens Bluet. Acidic shrub swamps and bogs associated with the ponds are habitat for rare species of moths such as the Pale Green Pinion moth. Open-canopy pitch pine - scrub oak barrens within this Core Habitat provide habitat for rare moths such as Melsheimer's Sack Bearer and the Barrens Buckmoth. And still other rare moths live in the coastal shrublands and dunes within this Core Habitat, including the Chain Dot Geometer, the Coastal Heathland Cutworm, and the Dune Noctuid moth.

Vertebrates

This Core Habitat contains a number of coastal beaches on both the eastern and western shores of outer Cape Cod that collectively comprise some of the most important breeding habitat for Piping Plovers along the Atlantic Coast. Significant areas of nesting habitat for Least Terns are also present. New Island in Nauset Marsh has traditionally supported one of the largest breeding colonies of Common Terns and Laughing Gulls in Massachusetts; however, birds from this colony are shifting to new locations as natural processes of coastline change weld the island to Nauset Spit and allow easier access by mammalian predators.

In this Core Habitat, the sandy upland habitats dominated by pine-oak forests and barrens support the largest and most extensive populations of Eastern Spadefoot Toads in New England. There are also significant and widespread populations of Eastern Box Turtles as well as Spotted Turtles. These woodlands and shrublands also provide some of the most important habitat in New England for landbirds characteristic of pitch pine - scrub oak barrens, including the Eastern Towhee and the Prairie Warbler. This Core Habitat also encompasses breeding habitat for Vesper Sparrows, including open, sparsely vegetated areas of pitch pine barrens in the Marconi area of Wellfleet, and the sandy habitats of the Provincelands, especially adjacent to the Provincetown airport. Northern Harriers have been observed within this Core Habitat, especially near Pilgrim Lake and Hatches Harbor.

The estuarine, salt marsh, tidal creek, beach, and sandy upland habitats in this Core Habitat support Diamondback Terrapins. Wellfleet Harbor contains perhaps the largest Diamondback Terrapin population in Massachusetts. Over 110 documented observations of nesting are known from this Core Habitat. Within the harbor, Blackfish Creek probably supports the most individuals. Wellfleet Harbor is also the northernmost site at which the species occurs in the U.S. Here the Core Habitat is surrounded and interspersed with development, increasing the likelihood of disturbance, collisions with vehicles, and degradation of foraging and nesting habitat. Entrapment by marine debris is a potential source of mortality for this species.

Much of this Core Habitat is protected as part of the Cape Cod National Seashore, but further protection of other suitable habitat is needed.

Core Habitat BM1226

This Core Habitat contains a large, impressive Marine Intertidal Flat community in Brewster, Orleans, and Eastham. This area is surrounded by high-quality estuarine communities that support rare seaside plants. The diversity of salt marshes, tidal creeks, and sandy uplands also support Diamondback Terrapins. Conservation of additional Diamondback Terrapin habitat is needed to help protect this species here.

Natural Communities

This Core Habitat contains a large, impressive Marine Intertidal Flat with some species of particular interest, including Brant, horseshoe crabs, and Diamondback Terrapins. The Marine Intertidal Flat community is found in areas protected from intense wave action. Although many flats have little to no vegetation, they are physically and biologically linked to other coastal marine systems. The majority of surrounding land here is occupied by high-quality estuarine communities including Salt Marshes, Eel Grass Beds, and Barrier Beaches.

Plants

Rare plant species adapted to seaside habitats, such as Seabeach Dock and Oysterleaf, are found within this Core Habitat.

Vertebrates

This Core Habitat surrounding the Namskaket/Herring River Marsh contains widespread salt marsh, extensive tidal creeks, beaches, and sandy uplands that support Diamondback Terrapins. At least three nesting sites in sandy uplands have been confirmed. Portions of the marshes, tidal creeks and uplands are protected for conservation, and protection of other suitable habitat is needed. Potential threats to this species include collisions with vehicles and degradation of foraging and nesting habitat.

Core Habitat BM1241

South Beach and South Monomoy Islands provide the most important breeding sites in the state for Piping Plovers, and South Monomoy Island also supports the state's largest Common Tern, Laughing Gull, Herring Gull, and Great Black-backed Gull colonies. The beaches and extensive sandflats and mudflats at North and South Monomoy Islands and South Beach Island collectively represent one of the most important shorebird migration stopover areas in New England. In addition, this Core Habitat encompasses large, high-quality natural communities, including Estuarine Intertidal Flats, Maritime Beach Strands, and Maritime Dune systems. These areas provide significant habitat for several rare moth species, two rare plant species, as well as Diamondback Terrapins. The Core Habitat encompasses Nauset Beach, South Beach, North and South Monomoy Islands, Sampson Island, Hog Island, Tern Island, Strong Island, Sipson Meadow, Sipson Island, Little Sipson Island, Pleasant Bay, Little Pleasant Bay (and associated inlets), and Chatham Harbor. Given their constantly changing configurations, the current extents of the beaches, especially South Beach Island, may not be reflected precisely in the Core Habitat.

Natural Communities

This long Core Habitat includes an exemplary barrier beach system. It includes five miles of good-quality Maritime Beach Strand with minimal disturbances located on the ocean side of a high-quality 2000-acre Maritime Dune system with natural vegetation, limited access, and no vehicle damage. Maritime Beach Strand communities are sparsely vegetated, narrow, wrack-strewn areas between the line of high tide and the foredunes. They are usually part of barrier beach systems and are found seaward of any dunes, but above daily high tides. Meanwhile, the Maritime Dune community consists of patches of herbaceous plants interspersed with areas of bare sand and shrubs. It occurs on windswept dunes within the salt spray zone, and often grades into shrubland or woodlands on more sheltered back dunes. Also included in this Core Habitat are the Estuarine Intertidal Saline/Brackish Flats along the shores of Monomoy Island. These flats are well-buffered within a complex of estuarine communities and are a rich area for migratory shorebirds and horseshoe crabs.

Plants

Two rare sea-beach plants, American Sea-Blite and Oysterleaf, are found within beach strand communities along the shores of Monomoy Island.

Invertebrates

This Core Habitat includes Monomoy Island (part of the Monomoy National Wildlife Refuge), which is protected coastal sandplain habitat for rare moths such as the Coastal Heathland Cutworm. It is likely that Monomoy Island is inhabited by additional rare coastal moth species, such as the Dune Noctuid moth, the Drunk Apamea moth, and other species.

Vertebrates

Barrier beaches and islands within this Core Habitat support several species of breeding coastal waterbirds and raptors, including: Piping Plovers, Least Terns, Common Terns, Roseate Terns, Black-crowned Night-Herons, Glossy Ibises, Snowy Egrets, Laughing Gulls, Herring Gulls, Great Black-backed Gulls, and, in some years, Black Skimmers, Arctic Terns, Short-eared Owls, and Northern Harriers. South Beach and South Monomoy Islands are notable as two of the most important breeding sites in the state for the Piping Plover. South Monomoy Island also supports the state's largest Common Tern, Laughing Gull, Herring Gull, and Great Black-backed Gull colonies, and is among the most important breeding sites for Black-crowned Night-Herons and Snowy Egrets. Potential threats to these coastal waterbird and raptor species include predation, human disturbance (including dogs), off-road vehicles, and habitat degradation caused by dune-building activities. Annual protection from these threats is needed.

The beaches and extensive sandflats and mudflats at North and South Monomoy Islands as well as South Beach Island collectively represent one of the most important shorebird migration stopover areas in New England. Uncommon species of marsh birds and waterfowl, including Pied-billed Grebe, Common Moorhen, and Gadwall, occasionally nest in wetlands on South Monomoy Island.

This Core Habitat also contains salt marsh, tidal creeks, beaches, dune areas, shallow waters, and sandy uplands that support Diamondback Terrapins. Thirty documented observations of nesting are known from the late 1970s and early 1980s. The land along the upper reaches of the bay is relatively undeveloped, but in areas of development, potential threats to this species include mortality caused by vehicles and degradation of foraging and nesting habitat.

Core Habitat BM1244

Invertebrates

This Core Habitat includes an area of swampy, shallow wetlands with Water-willow that are habitat for the Water-willow Stem Borer moth, a Threatened species that is found nowhere in the world outside of Massachusetts. Although relatively small and surrounded by development, this Core Habitat is located less than 10 km from other habitats for the Water-willow Stem Borer, including Core Habitats in Eastham and Brewster. This proximity allows for occasional movement of individual moths between these sites, which is important to maintain a viable population of this species. This Core Habitat appears to be unprotected.

BioMap: Core Habitat Summaries

Orleans

Core Habitat BM1245

This Core Habitat encompasses several clusters of Coastal Plain Ponds and wetlands that support rare damselflies, such as the New England Bluet and Pine Barrens Bluet, as well as the Water-willow Stem Borer moth. The pondshores here also support several populations of the beautiful and globally rare Plymouth Gentian. The Core Habitat's Pine-Oak woodlands provide habitat for a variety of birds, and the area may represent the best opportunity to protect the Eastern Box Turtle on Cape Cod. Much of this Core Habitat is protected within the Nickerson State Park, but further conservation of the remaining unprotected lands would help protect one of the largest areas of relatively unfragmented upland habitat remaining in the mid-Cape region.

Natural Communities

This Core Habitat includes several clusters of Coastal Plain Pondshore communities that have associated state-listed plant and animal species. Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct Coastal Plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. Here one cluster is completely buffered by a natural landscape that has roads but little development. Another cluster is partially buffered by a natural landscape. Because there are multiple high-quality ponds in this Core Habitat, the habitat and long-term viability of the component species are greatly enhanced. However, most of the ponds in the cluster are within the zone of groundwater contribution to public water supply wells, which can contribute to lowering of pond levels. If water withdrawals are managed to mimic natural fluctuations, the impact on the natural community is lessened.

Plants

Two very high-quality populations and several smaller populations of the globally rare Plymouth Gentian occur along shores within this Core Habitat, as does a large, healthy population of Maryland Meadow Beauty.

Invertebrates

Wetlands within this Core Habitat such as Cliff Pond and the numerous small ponds peripheral to it, as well as Smalls, Mill, and Cahoon Ponds to the southwest, all provide habitat for rare damselflies such as the New England Bluet and the Pine Barrens Bluet, as well as for the Water-willow Stem Borer moth. All of these ponds are located within a large area of undeveloped and unfragmented landscape, allowing for unimpeded dispersal of rare damselflies, Water-willow Stem Borer moths, and other species.

Vertebrates

This large and relatively unfragmented Core Habitat contains significant habitat for Eastern Box Turtles, and may be one of the best places to preserve viable populations of this species on Cape Cod. This is also an important block of habitat for woodland and shrubland birds characteristic of Cape Cod, including the Eastern Towhee, one of the fastest declining songbirds in eastern North America. Given its location near the "elbow" of Cape Cod, this area provides important migration habitat for many species of landbirds.

BioMap: Core Habitat Summaries

Orleans

Core Habitat BM1246

Plants

The beautiful and globally rare Plymouth Gentian is found within this Core Habitat.

Invertebrates

This Core Habitat includes Gould Pond and other nearby wetlands, all of which are habitat for the rare New England Bluet damselfly. Though surrounded by development to the north, east, and west, this Core Habitat is located less than 5 km from the populations of the New England Bluet at Twinings Pond in Orleans and at Cliff Pond in Brewster, which may allow for dispersal of individuals between these locations. This Core Habitat appears to be protected, as it is located entirely within municipal watershed land.

Core Habitat BM1270

Invertebrates

This Core Habitat includes Twinings Pond, Sarahs Pond, and other nearby wetlands, all of which are habitat for the rare New England Bluet damselfly. This Core Habitat is located less than 5 km from the populations of the New England Bluet at Cliff Pond in Brewster and at Gould Pond in Orleans, which allows for occasional dispersal of individuals between these locations. About half of this Core Habitat is protected as conservation land; protection of additional lands within this Core Habitat is desirable to increase the amount of contiguous protected habitat, thus helping to ensure the long-term viability of rare species inhabiting the area.

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